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in some parts of England more than half, have risen from the ranks of hired labor. Every artisan who has exceptional natural abilities has a chance of raising himself to a post of command, and is in fact a candidate for the prizes that may be earned by success in business ; and the average of these Earnings of Management is high, partly because the class of employers contains, in addition to the able men that have been born within its ranks, a large share of the best natural abilities that have arisen among the lower ranks of industry. While *Profits* on capital invested in education is a specially important element in the incomes of professional men, *Rent* of rare natural abilities is a specially important element in the incomes of business men.

Thus, while General Walker regards as analogous to rent the whole of the excess of the earnings of the successful business man over those of the man who just gets *no* profits, I apply the analogy only to what may, at a rough guess, be put at a tenth part of this sum. I apply it only to the excess over the earnings of a business man who has average natural abilities and who makes sufficient profits to be a fair return for the trouble of giving a business education and a start in life, and to cover the difficulty of bringing him and his capital together.

I hope this answer, short and imperfect as it must needs be, will tend to clear away some confusions that have arisen in England as well as in America as to the relation in which my theory of business profits stands to that of General Walker. The forthcoming first volume of a work on Economics will contain a full statement of my position as to business earnings, and deal with certain difficulties which are evaded not only here, but in the *Economics of Industry*.

ALFRED MARSHALL.

ANALYSIS OF COST OF PRODUCTION.

The definition that makes abstinence an element in cost of production seems to me to be open to very serious objections. In the first place, as a matter of scientific accuracy, it is clear that production must have preceded abstinence. There can be no abstinence until there is wealth to abstain from. The first wealth abstained from must have had a cost of production as well as all later wealth, and in that cost abstinence can have had no place. Further, to quote the words of Cairnes,

the author of the definition, "The sacrifice [of abstinence] will be measured by the quantity of wealth abstained from, taken in connection with the risk incurred, and multiplied by the duration of the abstinence." Now, the quantity of wealth abstained from is gauged by its value; and its value depends on its cost of production. If, then, we introduce abstinence as an element in determining value, and value as a factor in the measure of abstinence, we are clearly guilty of using the thing to be measured as part and parcel of our standard for measuring it. Again, the primary object of the definition was to eliminate questions of wages and profits from cost of production. But, clearly, the "quantity of wealth abstained from" in the production of any commodity depends directly on the rate of wages. It *is*, in fact, the wages under another name. If wages rise, there is increased abstinence; and, if we accept the definition, we are bound to say there is an increase in cost of production. The definition, therefore, only *seems* to eliminate wages from cost of production.

Finally, there are changes of value which, so far as I see, neither spring from, nor correspond to, any changes in cost of production as defined by Cairnes. I refer to those undoubted changes of value that attend a rise or fall of the general rate of profits. When profits fall, there is a gradual fall in the value of commodities (such as wine and machine-made goods), which are "called on to pay profit" for a longer period or in greater proportion than the average. (Mill, Bk. III., ch. iv.) Now, my point is that, under Cairnes's definition, the cost of production of these commodities remains, relatively to other commodities, the same after the fall of profits as before the fall. The labor and the risks of production remain unchanged. The quantity of wealth abstained from and the duration of the abstinence are relatively unchanged also. By "relatively," I mean that the proportion which the abstinence required in the production of wine bears to the abstinence required in the production of bricks or coal, is not affected by the circumstance that causes the fall of profits. How, then, shall we hold that value depends on cost of production, if we, at the same time, accept Cairnes's definition of cost of production and of abstinence as one of its elements?

These considerations seem to me to justify an attempt at

a better analysis of cost of production. As a first step in the attempt, I venture to point out that abstinence is not itself a primary fact of industry, that it is rather the incident or outcome of a more fundamental fact. That more fundamental fact is the length of time that must elapse between the outlay of labor and the possession of the finished product. The period differs widely in different industries. In those pursuits that belong to a low industrial condition,—such as hunting, fishing, gathering wild fruits and berries, etc.,—the interval between exertion and the presence of its enjoyable result is very small. In farming, on the other hand, the labor devoted to clearing and preparing the ground, seeding it, and protecting the growing crop, must wait on the slow processes of nature to get a return. In the production of beef, apples, woollen clothing, wine, etc., we have examples of commodities requiring still longer waiting on the part of the producer. That this waiting constitutes a real element in cost of production will hardly be questioned by any one who bears in mind human impatience. What I wish to insist on at present is that, apart from the necessary labor and risks, this waiting for the product is the only real element in cost of production. Given men who are ready to devote some portion of their time and energy in such ways as do not promise immediate returns, and all sorts of production become possible. Of course, they must have subsistence meanwhile; but subsistence they must have in any case, or perish. Unless a community has some disposable margin of time left over, after providing for the urgent wants of the hour, labor for a distant return is out of the question for its members. But, happily, even the most depressed communities have ordinarily such a margin, and are therefore able to engage in the production of commodities requiring the sacrifice of waiting, in addition to the sacrifice of labor. They need no other outfit or preparation than a willingness to use the opportunities that nature puts within their reach, on the terms that nature offers.

Of course, the possession of a reserve fund — saved products of past labor — may greatly facilitate production by enabling men to devote their time wholly to industries in which waiting for return is necessary. This may have great advantages, but

it does not alter the essential conditions or the cost of production. It merely affects the mode in which men choose to bear the cost. The possession of such a fund on the part of some individuals in the community allows a sort of vicarious waiting to arise. The possessor of capital assumes the burden of the waiting on behalf of those who work for wages. The advance of wages is in reality a discounting of the future rights of the laborer, the rate of discount depending, in this as in other cases, on the law of demand and supply. If those who labor would submit to nature's terms, and wait for the finished product to emerge, the whole product would belong to them, without abatement or deduction. Partly, no doubt, especially in those industries where the waiting is necessarily long, this may be physically impossible for the mass of laborers; but the will is more commonly lacking than the ability. At all events, the fact remains that abstinence, as usually manifested, is a result of the inequalities of success and waiting capacity among men. It is a matter between man and man, not between men on the one side and the materials and forces of nature on the other. In this respect, abstinence is clearly on the same level as wages and profits. It belongs, indeed, to the subject of wages and profits rather than to production as such. The conditions of production do not, *per se*, demand abstinence. They do demand labor and, after the labor, an interval of waiting, greater or less, for the fruits of the labor to appear. In the account with nature, the abstinence of one set of men is offset and cancelled by the premature and (so far as production is concerned) unearned consumption of the other set. Taking both sets together, what they accomplish between them reduces itself, in the ultimate analysis, to the labor and subsequent waiting for enjoyable result, which nature exacts as the price of her bounty.

This analysis of cost of production is applicable to the most complex and highly developed industrial system, as well as to the simplest and rudest. The introduction of machinery and division of labor acts on the two main elements of cost of production in opposite ways. It diminishes labor, but it does so at the expense of greater waiting. Labor spent in making machinery is, in the very nature of the case, labor for a distant

return. The reward of such labor is not the machine, but the increase of consumable commodities which the machine, as long as it lasts, will aid in producing. Given the necessary knowledge, machinery is possible, just as agriculture or beef-raising is possible, for men who are prepared to labor for a distant reward. The cost of production of machine-made goods is the sum total of the labor, waiting, and risk involved in making the machinery and in using it later as a help in production. Similarly as regards division of labor. In this, we have a powerful device for lessening the labor of production; but it is obtained at the cost of additional waiting and new risk,—the delays, often long, that necessarily attend the exchange of products, and the risk of failing to suit the demand of those with whom exchange is sought. Thus, the introduction of machinery and division of labor does not change the elements of cost of production, but merely modifies their relative action as separate factors in the cost.

One further consideration it is necessary to bear in mind in treating of cost of production as the regulator of values. Here we have to deal with many different kinds of labor,—different in severity, in danger to life and health, in disagreeableness and the like, and with wide diversities in the necessary period of waiting. As regards differences in the character of the labor, there is no standard apart from the judgment of the laborers concerned. Danger to the health, for example, or uncommon severity of labor, has no effect on value, except so far as it deters men from engaging in that particular occupation. If they be ignorant of the danger or indifferent to the severity of the labor, the value of the product will not be affected. Similarly, as regards the waiting element of cost, it is not the absolute hardship of the waiting that counts in cost of production, but men's estimate or opinion of that hardship. A general change of opinion regarding the sacrifice of waiting acts on the values of commodities in all cases where the length of waiting is different. If men come to think more lightly of waiting, there must come a fall in the value of those commodities which demand longest waiting. The application of this principle to the case of a fall of profits is obvious. A general fall of profits is merely evidence that men think waiting for reward less of

a sacrifice than they formerly thought it. The fall of profits, and the fall in value of products such as wine, are both merely evidence of one and the same fact, both effects of one common cause,—namely, the changed estimate of the sacrifice of waiting.

The bearing of these considerations on various questions relating to wages will be at once apparent. Much loose writing has been indulged in of late years in reference to the source and the law of wages. I believe that a full and correct apprehension of cost of production is requisite, in order to place the law of wages on its true and unassailable foundation. The champions of labor, who claim the whole product of industry as the rightful due of the laborers, must be prepared to accept the terms on which products are obtained in this world. At present, they claim an impossibility; for they claim the product before nature gives it. To make good their title to exclusive ownership, they must be prepared to face the whole cost of production. Also, those writers who argue that wages are paid out of the proceeds of present labor rather than out of the proceeds of past labor, must see what a baseless fabric they have been erecting. The finished commodities that are streaming into the reservoirs of trade at the present moment, to become the wages of the labor now being expended, are not, for the most part, products of recent labor. They are the final results of labor spread over years past, much of it over many years. The argument that laborers always produce something for their employers before receiving wages, and that there is, therefore, no real advancing of wages, is at once seen to be fallacious, when attention is directed to the element of time in production. For the most part, the result of any particular week's labor is not a consumable commodity at all, but some small forwarding of the production of such a commodity towards its final stage, or some contribution towards the machinery for so forwarding it. The final result, which is to form the eventual reward from nature for this labor, may be, and usually is, still far in the future. The machinery and materials which the employer has on his hands meanwhile are no doubt valuable; but their value lies in their future capabilities, and not in their present utility for men. If there were no men willing to wait for the rewards of their

exertions, such things would cease to have value, or, rather, such things could never have existed. The decisive point for our present question is that such things are not available to pay wages. This fact once fully recognized, the discussion of the wages problem may be expected to take a more useful direction than it has had in certain recent publications.

S. M. MACVANE.

ACTION UNDER THE LABOR ARBITRATION ACTS.

Seven States have been equipped with laws providing some special form of arbitration or mediation for the settlement of industrial disputes. These States are Iowa, Kansas, Massachusetts, New York, New Jersey, Ohio, Pennsylvania.*

Roughly speaking, these acts may be divided into two classes,—those creating a permanent board of arbitration appointed by the governor, with jurisdiction over the whole State, as in Massachusetts and New York, and those providing merely for the creation of local boards in each county, usually upon the joint petition to the Court of Common Pleas of a specified number of employers and employees, as in the case of the other States mentioned. It is true that there are also provisions for local boards in Massachusetts and New York; and New York, in particular, has attempted to combine the two methods, by making provision for an appeal from the decision of the local boards to the three arbitrators constituting the State board: but the attempt has altogether failed. None of the boards, not even the permanent boards, have had

*For an analysis of the statutes of Iowa, Kansas, Massachusetts, and New York, see this *Journal*, *supra*, p. 86.

In Illinois, a bill modelled on the Massachusetts act was passed by the House of Representatives about the middle of April, 1887, but was defeated in the Senate about two months later. On the 17th of June, however, the governor approved a bill providing "that two or more persons or corporations may appear in person or by attorney in any circuit court (or in the Superior Court of Cook County) and submit to any judge thereof, orally, and without formal pleadings, *any matter in controversy*,"—having first entered into a written agreement to waive all right of appeal, release all errors, and submit the decision as final and binding. The bill seems to have wholly escaped the notice of those advocating arbitration boards, but Commissioner John S. Lord of the Bureau of Labor Statistics thinks "it may prove not the less a single and effective legal process to those who desire arbitration at all." An arbitration bill was also lost at the last session of the legislature in both Nebraska and California.